Notecard

1. What is a flipped classroom? Describe it.
2. What might be some positive outcomes of flipping a class?
3. What are your top 3 concerns with flipped classes? (make a list)
Flipping a Non-Major’s Common Core Course

Sarah L. Couch & Steven D. Koether
Biological Sciences Department, COSET
1. What is a flipped classroom? Describe it.

2. What might be some positive outcomes of flipping a class?

3. What are your top 3 concerns with flipped classes? (make a list)
Flipped

A method of instruction utilizing independent acquisition of knowledge at home (reading assignment, online lecture) with the practice component utilizing small group learning occurring in the face to face setting.

(Bishop and Verleger, 2013)
Our Course: Foundations of Science

*Non Science Majors

*Common Core Science

*Integrated (Astronomy, Physics, Chemistry, Geology, Biology, Genetics)

*Developed for our last SHSU Quality Enhancement Plan (QEP)

-improve undergraduate critical-thinking and scientific literacy

*4 credit hours (3 “lecture”, 1 lab)

*Average “Lecture” size of ~75 to 80, Lab size of ~24
Course

*Explicit instruction on critical thinking (as defined by Delphi Report - Faccione, 1990)
MIXED (Ennis, 1989)

“the process of purposeful, self-regulatory judgment. This process gives reasoned consideration to evidence, context, conceptualizations, methods, and criteria”

Analytic Philosophy/Logic & Natural Sciences (Brookfield, 2012)

*Infused practice with critical thinking throughout, within context
INFUSED (Ennis, 1989)

*Use of group case studies
“Case studies are stories with a message. They are not simply narratives for entertainment. They are stories to educate. Humans are storytelling animals. Consequently, the use of cases gives a teacher an immediate advantage; she has the attention of the audience.” - Clyde (Kipp) Herreid
"Acceptance" of Evolution
**Flipped vs Blended**

**Flipped**: Method of instruction utilizing independent acquisition of knowledge at home (reading assignment, online lecture) with the practice component utilizing small group learning occurring in the face to face setting.

(Bishop and Verleger, 2013)

<table>
<thead>
<tr>
<th>Home</th>
<th>Class</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive Mini Lecture</td>
<td>F2F Practice of Content</td>
<td>Interactive Lecture</td>
</tr>
<tr>
<td></td>
<td>Variety of Instr. Strategies</td>
<td></td>
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</table>
# Flipped vs Blended

**Blended**: A method of instruction utilizing a variety of instructional strategies in face-to-face and online components encouraging students to be self-directed learners.  

*(Linder, 2017)*

<table>
<thead>
<tr>
<th>Home</th>
<th>Class</th>
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<tbody>
<tr>
<td>Interactive Online Lecture</td>
<td>Case Study</td>
<td>Online Review Quiz</td>
</tr>
<tr>
<td>Reading with Quiz</td>
<td>Discussion</td>
<td>Web Investigation Assignment</td>
</tr>
<tr>
<td>Current Event Search</td>
<td>Lecture with AL</td>
<td>Group Chat/ Discussion on Articles</td>
</tr>
</tbody>
</table>
“Traditional”

In-Class
- Lecture: 135 min/wk
- Lecture Group: <15 min/wk

Lab
- Lab Group: 90 min/wk

Out-of-Class
- 30-60 min/wk
- ~20 min/wk

Flipped (& Blended)

In-Class
- Lecture: 40 min/wk
- Lecture Group: 110 min/wk

Lab
- Lab Group: 90 min/wk

Out-of-Class
- Optional
- ~10 min/wk
- ~30 min/wk
Course Adoption

National BLENDED COURSE CONSORTIUM

Our Courses

ECONOMIC INEQUALITY
Is the trend of increasing economic inequality undermining the integrity of our democracy?

GLOBAL CHALLENGES
Promise and Peril in the 21st Century

SCIENCE FOR CITIZENS

STEWARDSHIP OF PUBLIC LANDS
Throughout this course, I hope to help you practice the use of the science lens to better understand scientific discoveries and technology, and to make use of them in your everyday life.

Which ideas are you most interested in evaluating as being scientific or not?

Drag up to four images into the boxes to the right.
“Traditional”

In-Class

Lecture
135 min/wk

Lab Group
90 min/wk

Out-of-Class

30-60 min/wk
~20 min/wk

Flipped (& Blended)

Lecture
40 min/wk

Lect Group
110 min/wk

Lab Group
90 min/wk

optional
~10 min/wk
~30 min/wk
Data - Quant

We maintained significant change overall (N = 467)
Levene’s Test >0.05, have equality of variance
Overall Pre Mean = 11.47  p<0.001
Overall Post Mean = 13.24  Effect Size = +0.39

2 Way ANCOVA (Covariate = PreCAT, Dependent = Treatment, Instructor)
No significant interaction
No difference between treatments (“traditional” vs experimental)
There was a significant difference between instructors, but with VERY small effect size
The Pre-score (our covariate) accounts for 20% of our overall effect
“Professor ___ is very passionate about science. She made science fun. I would definitely take her course again. She would walk around and made sure that we were working in our groups and she would always give us really good feedback with our homework, and case studies. She would also encourage us to come to class early, or after, and ask her for help and she would be willing to help us.”

“The way you teach is great, but sometimes it can be a lot going on when we start multiple projects around the same time but they end at different times”

“EVERYONE at Sam Houston should be required to take this class and pass with a B. Professor ____ MAKES you critically think. You can not pass this class without putting time into your answers which mean you need to understand the material. You literally can not bull shit this class. In most classes it's easy to memorize facts and spit them back out on the test, while this class asks you to USE YOUR BRAIN. How to make informed decisions based on the knowledge...you have available to you. BOMB. This class makes ya human. and a damn good one at that.”

“The online lessons were really long and repetitive. I hated the fact that I had to type something and think on almost every page. I just wanted to click through it and be done.. But NO, gotta make me work! I like a textbook where I can just skim and skip to the end.”

RE homework: “I think that everything should be kept the same. I really enjoyed these (online) lessons this semester because it helped me understand the material better.”
Data - Qual (Instructors)

Planning & Time Commitment

Difference in how students engaged with the instructor/questions in class

Difficult to Let it go, let it goooooooo (control)

Group Management/Facilitation of Learning

Course Enjoyment

SACS- COC
Why Change?

1. Students are demanding a higher quality experience from education. Many free online resources can give students information- what makes college different?- Experience of interacting and collaborating with peers
   (Bishop & Verleger, 2013)

2. Active Learning benefits ALL students. Flipped and Blended models make time available for work and collaboration and enhances the learning experience
   (O’Flaherty & Phillips, 2015)

   ✗ Misconception: If I have active learning then I can’t lecture.

   Lecture alone (F2F or online) is not engaging enough. Incorporating a few methods to increase engagement can have a big impact on student success and enjoyment. (Freeman et al., 2014)

3. Evidence of enhanced student experience- They Like the Class “More”
   (O’Flaherty & Phillips, 2015; )
Must Do’s

1. Make it Count
   At-home component must have an interactive assessment that “counts” for something

2. Planning and Flexibility
   ● Some Active Learning strategies require more planning than others
   ● Instructor must be available and open for questions and class discussions (But mindful of topic and time)
   ● Instructor must be flexible to adjust instruction to student needs- where is the extra attention needed

3. Control and Responsibility
   ● Letting go of responsibility for transferring information can be difficult
   ● Peer Evaluation System is necessary
One Small Step

Identify one lesson where you can see making a change

- Plan It- What would it look like? What would students do at home and in class?
- There are many active learning strategies- Pick one or two that you think you will actually use.
- Know your goal for the lesson- information assimilation, critical thinking, ...
- When are you going to do with this lesson?
- How much prep time will it take?
Resources

PACE

Small Teaching

International Center for Leadership in Education

National Center For Case Study Teaching in Science (NCCSTS)

On Campus Instructional Design Specialists
Questions?
References


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